MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2021/2022

BBA3034 – BUSINESS ANALYTICS

(All sections / Groups)

15 August 2022
9.00 a.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 pages (including cover page) with 6 questions only.
2. Attempt ALL questions. Distribution of the marks for each question is given.
3. Provide a project report with answers to all questions along with results.

Business Scenario (100 Marks)

An online virtual store named XXX intended to use data analytics and machine learning to extract insights from their data. Assume that XXX has hired you as a business analyst to help them uncover insights from their given dataset.

You have access to the following data set.

1. ID: ID Number of Customers.
2. Warehouse block: The Company have big Warehouse which is divided in to block such as A,B,C,D,E.
3. Mode of shipment:The Company Ships the products in multiple way such as Ship, Flight and Road.
4. Customer care calls: The number of calls made from enquiry for enquiry of the shipment.
5. Customer rating: The company has rated from every customer. 1 is the lowest (Worst), 5 is the highest (Best).
6. Cost of the product: Cost of the Product in US Dollars.
7. Prior purchases: The Number of Prior Purchase.
8. Product importance: The company has categorized the product in the various parameter such as low, medium, high.
9. Gender: Male and Female.
10. Discount offered: Discount offered on that specific product.
11. Weight in gms: It is the weight in grams.
12. Reached on time: 1 Indicates that the product has NOT reached on time and 0 indicates it has reached on time.

You are required to answer the following questions.

1. Business Understanding (5 Marks)

a. What is the business problem that you are expected to solve? (2.5 Marks)

b. Identify the data mining objective? (2.5 Marks)

2. Data Understanding (30 Marks)

a. Assess the quality of data (data types of each variable, inconsistent, incorrect values). (5 Marks)

Continued...

b. Provide the descriptive analytics by applying appropriate statistical techniques

- Basic statistics (10 Marks)
- Correlation coefficients (5 Marks)
- Box plots (5 Marks)
- Any other visualization (5 Marks)

3. Data Preparation (20 Marks)

a. Explain in detail how you pre-process the data before applying each of the machine learning algorithms. Pre-processing may include handling of missing values / converting nominal data to numeric / normalization / computing new variable…

(2 x 10 = 20 Marks)

4. Modelling (30 Marks)

You are required to provide minimum of 2 models to solve the problem.

a. Explain how do you identify the optimal model from each machine learning algorithm. Provide all the values of parameter turning (data partition ratios, parameters of specific algorithms) and the respective performance of the model.

(2 x 14 = 28 Marks)

b. What performance metrics will you use to evaluate the machine learning models and why? (2 Marks)

5. Evaluation (10 Marks)

a. Which machine learning algorithm gives the best model? Provide the values of performance metrics. (10 Marks)

6. Deployment (5 Marks)

a. What is your recommendation to the company (5 Marks)

End of questions

Project Assessment Rubrics for 100 marks

CRISP-DM stages	Very Week	Week	Fair	Good	Very Good
Problem solving skills	Not able to analyse data and does not explain the problem	Finds difficulty in analysing data and does not apply knowledge to a given problem	Able to analyse data but limited ability to apply knowledge	Able to analyse data and apply knowledge to a given problem	Able to analyse data and apply knowledge and proposes proper solutions
Business Understanding 5 Marks	1	2	3	4	5
Data Understanding 30 Marks	6	12	18	24	30
Data Preparation 20 Marks	4	8	12	16	20
Modelling 30 Marks	5	10	15	25	30
Evaluation 10 Marks	2	4	6	8	10
Deployment 5 Marks	1	2	3	4	5